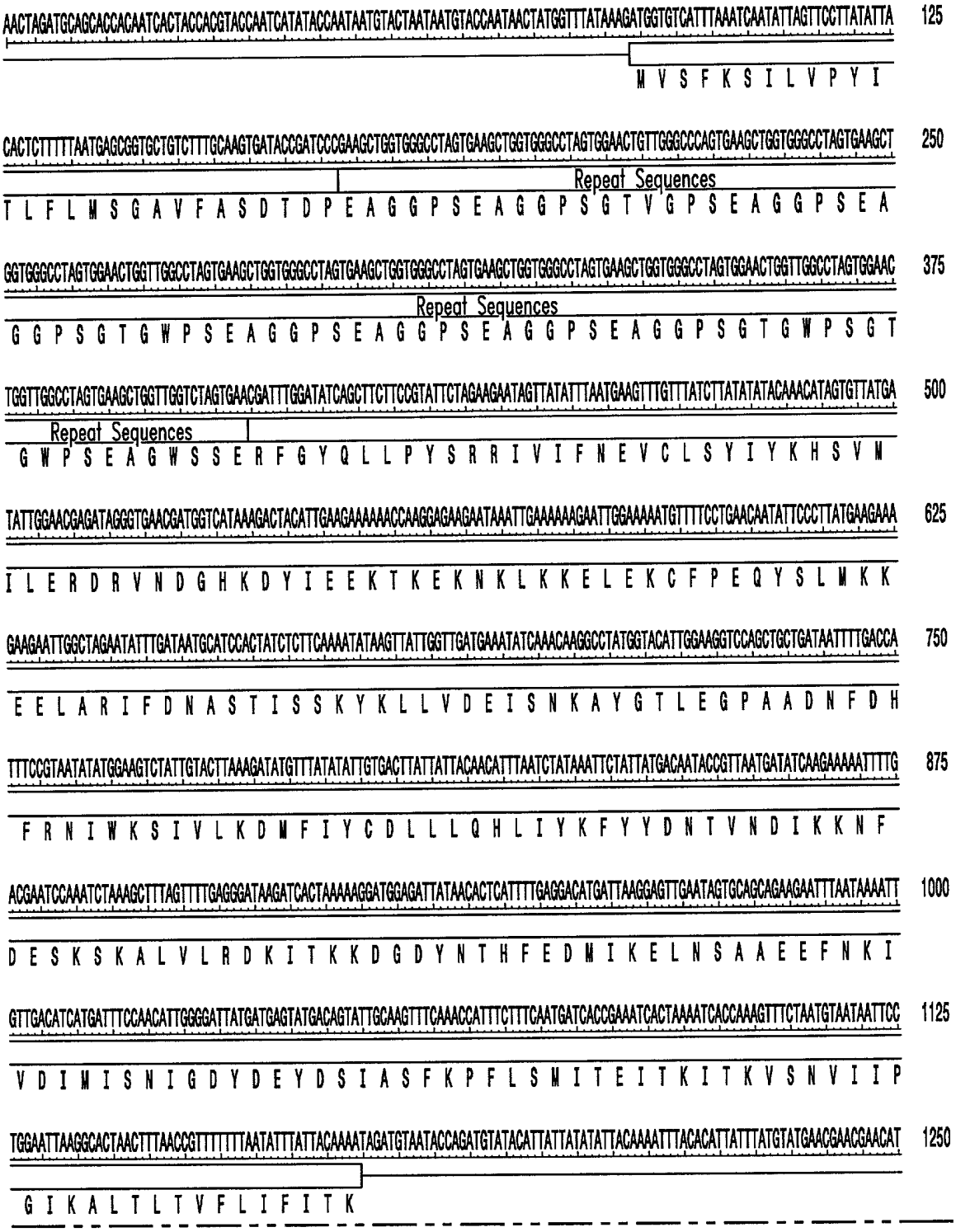
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M V S F K S I L V P Y I
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Repeat Sequences
T L F L M S G A V F A S D T D P E A G G P S E A G G P S G T V G P S E A G G P S E A
GGTGGGCCTAGTGGAACTGGTTGGCCTAGTGAAGCTGGTGGGCCTAGTGAAGCTGGTGGGCCTAGTGAAGCTGGTGGGCCTAGTGAAGCTGGTGGGCCTAGTGGAACTGGTTGGCCTAGTGGAAC 375
Repeat Sequences
G G P S G T G W P S E A G G P S E A G G P S E A G G P S E A G G P S E A G G P S G T G W P S G T
TGGTTGGCCTAGTGAAGCTGGTTGGTCTAGTGAACGATTTGGATATCAGCTTCTTCCGTATTCTAGAAGAATAGTTATATTTAATGAAGTTTGTTTATCTTATATATACAAACATAGTGTTATGA 500
Repeat Sequences
G W P S E A G W S S E R F G Y Q L L P Y S R R I V I F N E V C L S Y I Y K H S V M
TATTGGAACGAGATAGGGTGAACGATGGTCATAAAGACTACATTGAAGAAAAAACCAAGGAGAAGAATAAATTGAAAAAAGAATTGGAAAAATGTTTTCCTGAACAATATTCCCTTATGAAGAAA 625
I L E R D R V N D G H K D Y I E E K T K E K N K L K K E L E K C F P E Q Y S L M K K
GAAGAATTGGCTAGAATATTTGATAATGCATCCACTATCTCTTCAAAATATAAGTTATTGGTTGATGAAATATCAAACAAGGCCTATGGTACATTGGAAGGTCCAGCTGCTGATAATTTTGACCA 750
E E L A R I F D N A S T I S S K Y K L L V D E I S N K A Y G T L E G P A A D N F D H
TTTCCGTAATATATGGAAGTCTATTGTACTTAAAGATATGTTTATATATTGTGACTTATTATTACAACATTTAATCTATAAATTCTATTATGACAATACCGTTAATGATATCAAGAAAAATTTTG 875
F R N I W K S I V L K D M F I Y C D L L L Q H L I Y K F Y Y D N T V N D I K K N F
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D E S K S K A L V L R D K I T K K D G D Y N T H F E D M I K E L N S A A E E F N K I
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V D I M I S N I G D Y D E Y D S I A S F K P F L S M I T E I T K I T K V S N V I I P
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G I K A L T L T V F L I F I T K

Fig. 1A

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TGTGAATATGTTATATAATGACATACTATAATAATTAATATAATGTAGAGGATATTTTTTTTTAATAGTATTTAATGAATATTATAGTTATAATTATAATAATGTAGATAAAAATGACATTAATTT 1625

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TCATATTCATATTCTTTAGAAATATAACGAAAATTAGATGTAACTTCGCCACTTACAAGTAAACTACCATCAATATAATAATAATGAATACCATTCATGTCCGTATATTCTTTATATTTTTTATC 2000

ATATTTTATTTTGTGATTATTCCATTCATTTGTATCATTATTCAATGAGAGAAATAATAGCAGAAAGATCCTTCTATAGAAACATAAAATTCAATTAATACTGGATTATTATGTTTGCAAGTATA 2125

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CGATCATGTATACAAATACTATTGTTAAAGGTTCCCTATCCTTATAATTAAAGTGGCCAATAAGATTGGCATTAATTACATTAGTAGTGTGTGTATTTGTAATAGTATCATTAGTGGTACTGACA 2375

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Fig. 1B

PATENT APPLICATION

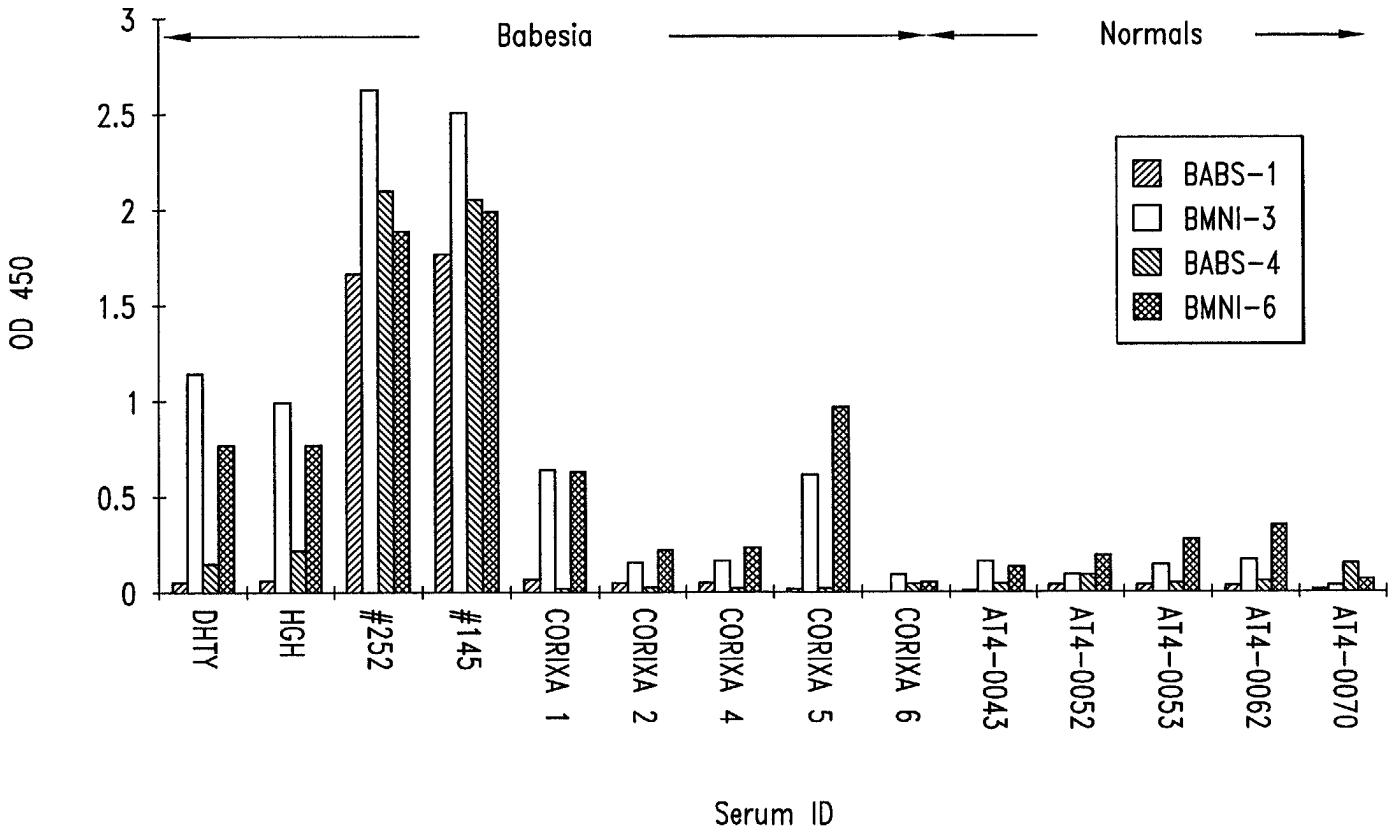
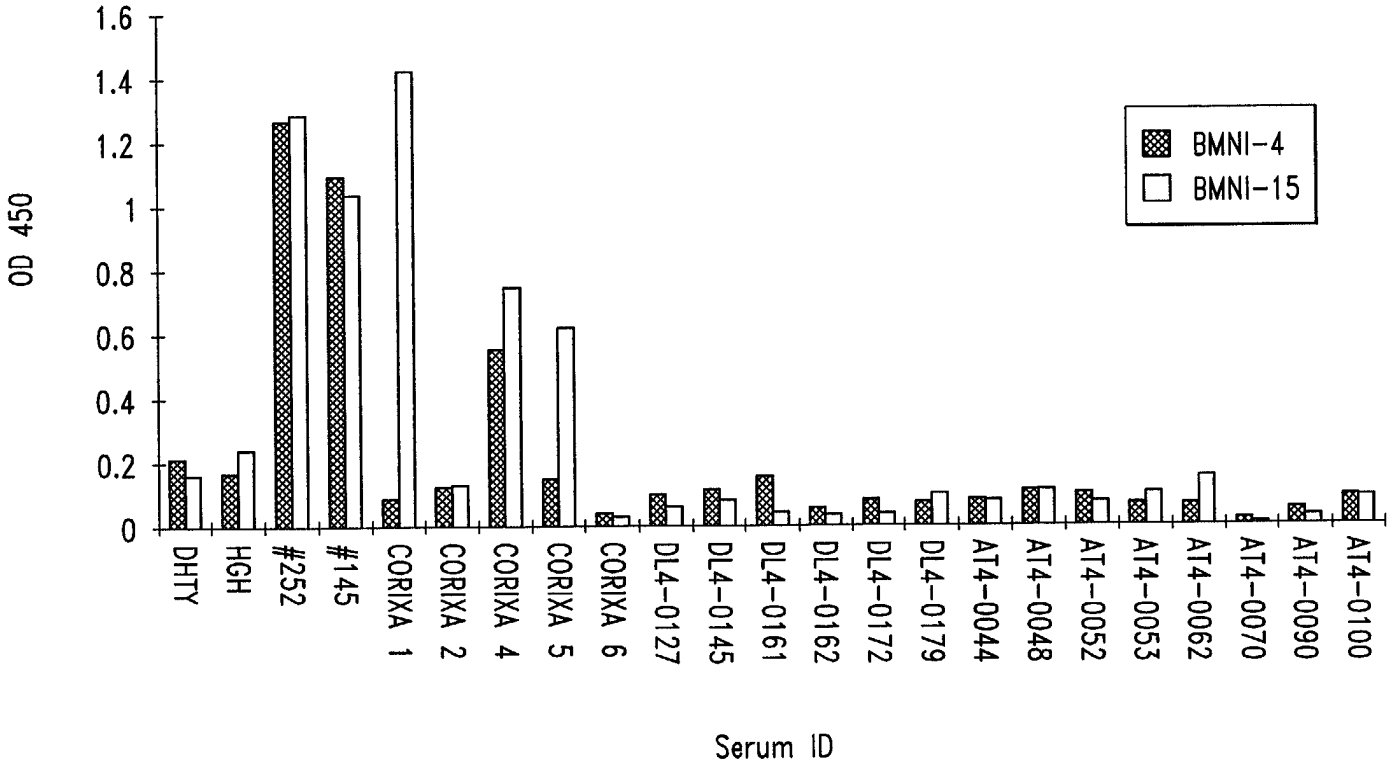


Fig. 2A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1.2
1
0.8
0.6
0.4
0.2
0
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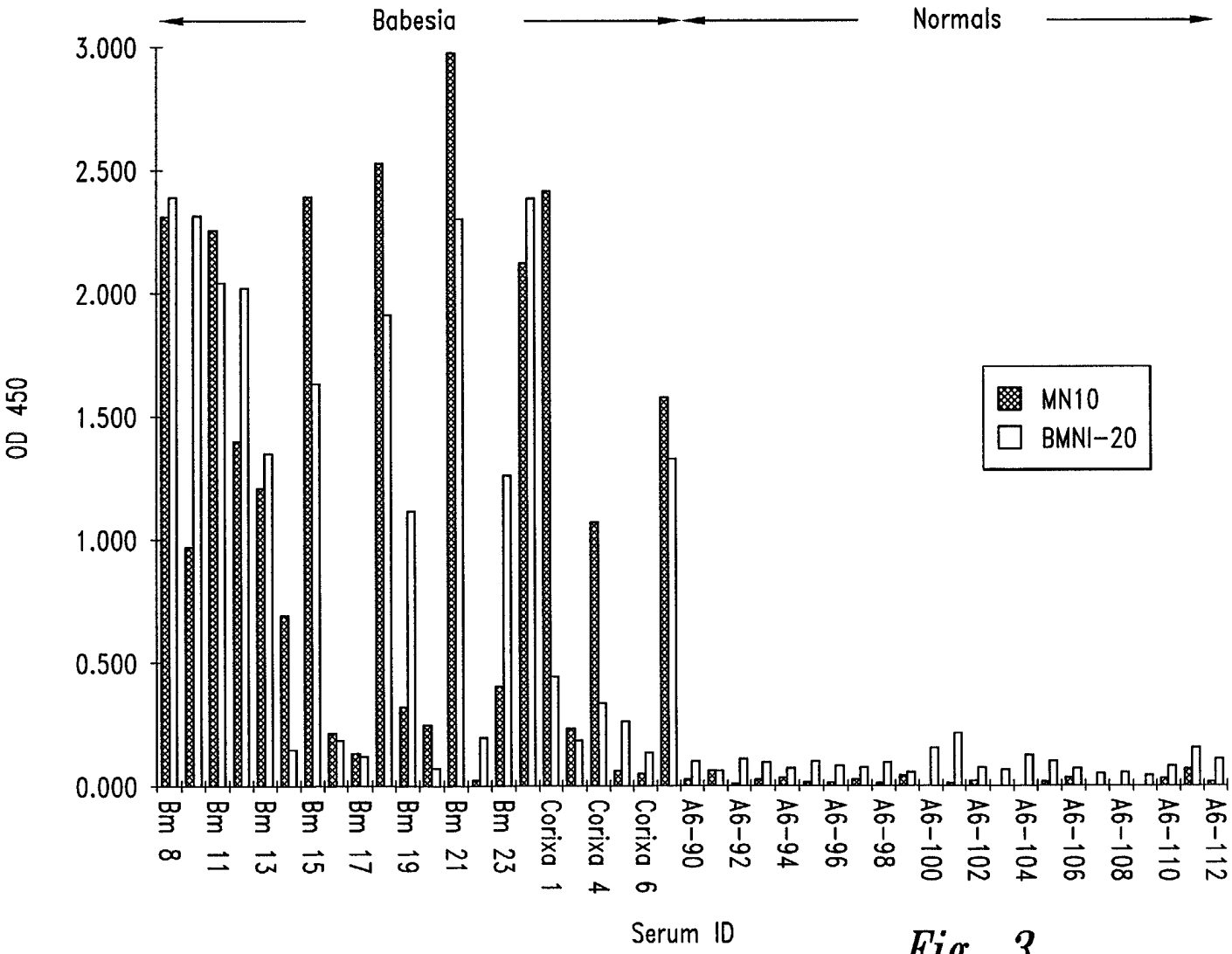
BMNI-15
DHTY
HGH
#252
#145
CORIXA 1
CORIXA 2
CORIXA 4
CORIXA 5
CORIXA 6
DL4-0127
DL4-0145
DL4-0161
DL4-0162
DL4-0172
DL4-0179
AT4-0044
AT4-0048
AT4-0052
AT4-0053
AT4-0062
AT4-0070
AT4-0090
AT4-0100
Serum ID

Fig. 2B


Babesia
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2.000
1.500
1.000
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OD 450
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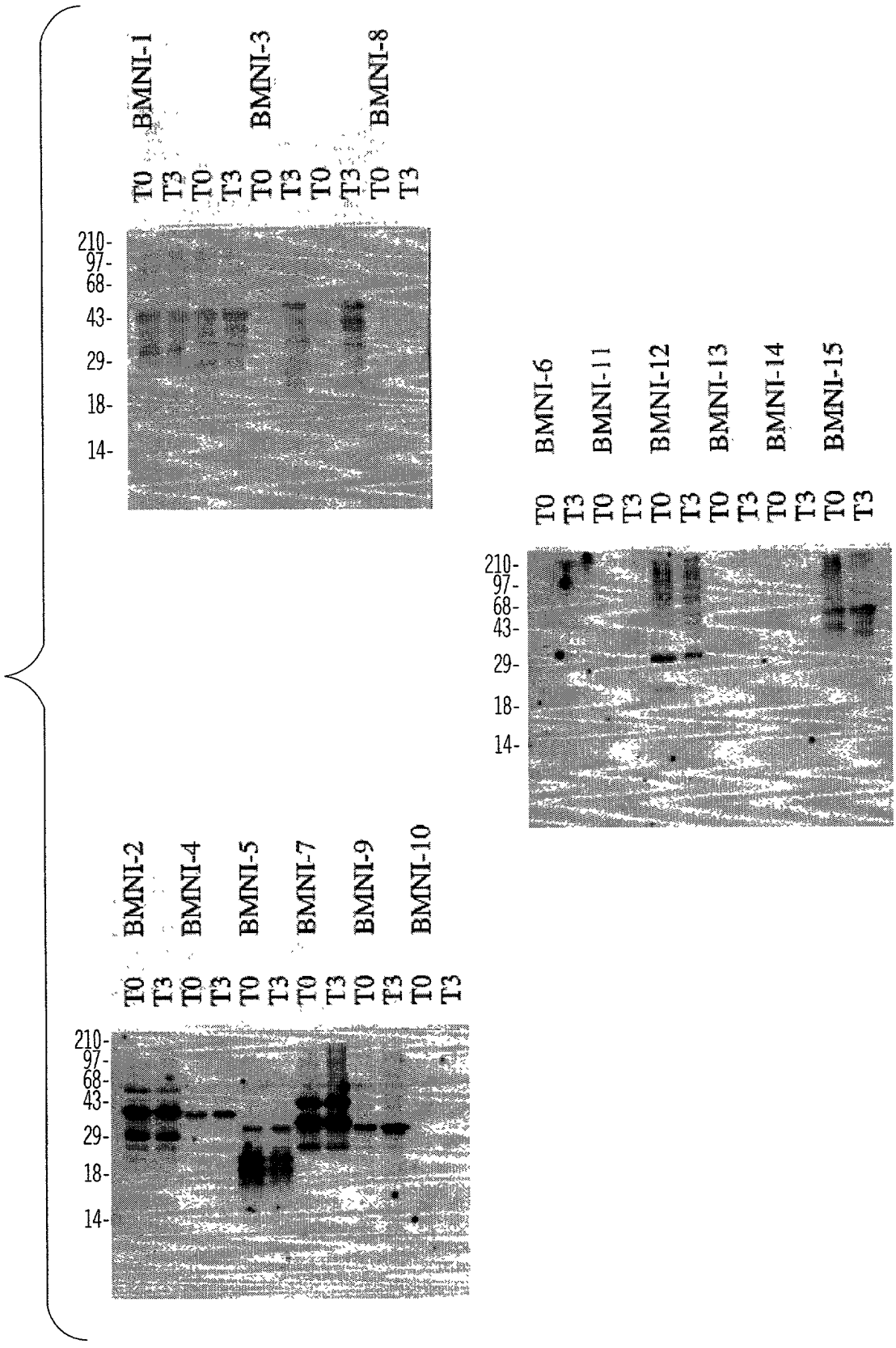
BMNI-20
Bm 8
Bm 11
Bm 13
Bm 15
Bm 17
Bm 19
Bm 21
Bm 23
Corixa 1
Corixa 4
Corixa 6
A6-90
A6-92
A6-94
A6-96
A6-98
A6-100
A6-102
A6-104
A6-106
A6-108
A6-110
A6-112
Serum ID

Fig. 3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BMNI-3
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14-

Fig. 4

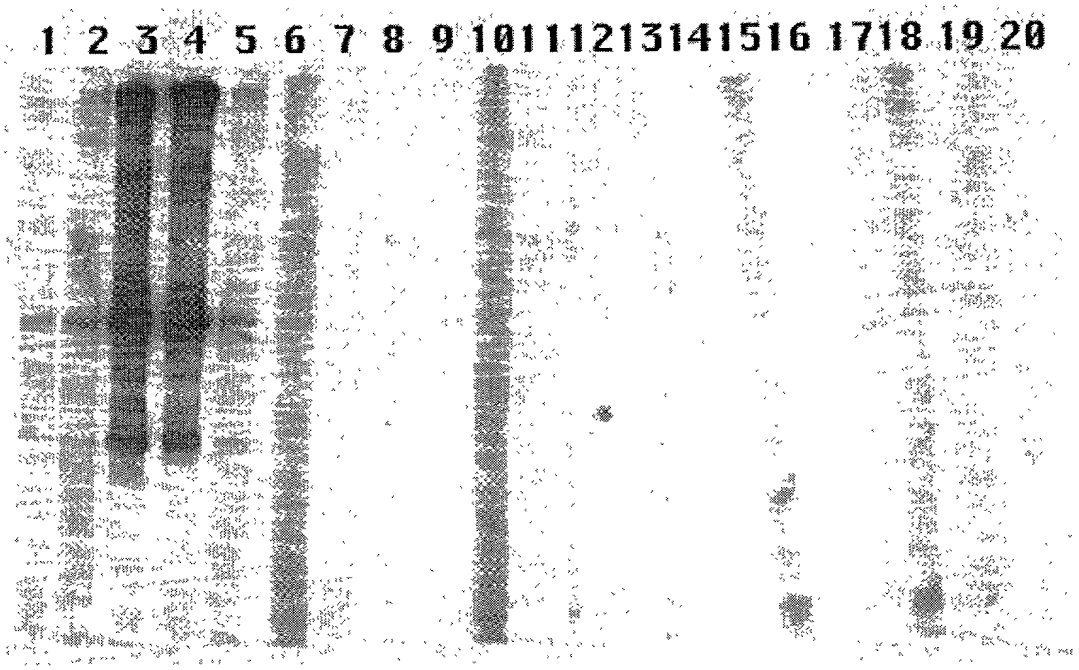

Fig. 5

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BI1053   ..........  ...GDTDREA GGPSGTVGP.  ..........  ..........
BI2227   ..........  ..AGDTDREA GGPSGTVGP.  ..........  .SEAGGPSEA
BI2259   ..........  ..AGDTDREA GGPSGTVGP.  ..........  .SEAGGPSEA
BI2253   ..........  ........EA GGPSGTVGP.  ..........  .SEAGGPSEA
GRAC,S   ..........  ...GDTDREA GGPSGTVGP.  .....SEAGG  PSEAGGPSEA
FISH,S   ..........  ..AGDTDREA GGPSGTVGPS  SAGGPSEAGG  PSEAGGPSEA
MN1HAM   ..........  ..AGDTDREA GGPSGTVGP.  ..........  .......SEA
MN2      ..........  ..AGDTDREA GGPSGTVGP.  ..........  ..........
MN1PAT   ..........  ..AGDTDREA GGPSGTVGP.  ..........  .......SEA
Bmni-6   YITLFLMSGA  VFAGDTDREA GGPSGTVGP.  ..........  .......SEA
MN3      ..........  ..AGDTDREA GGPSGTVGP.  ..........  .SEAGGPSEA
MR.T     ..........  ..AGDTDREA GGPSGTVGP.  ..........  .SEAGGPSEA
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 BI254   ...SEAGGPS  EAGGPSGTVG PSEAGGPSEA GGPSGTGWPS  EAGGPSGTVG
BI1053   ...SEAGGPS  EAGGPSGTVG PSEAGGPSEA GGPSGTGWPS  EAGGPSGTVG
BI2227   GGPSEAGGPS  EAGGPSEAGG PSEAGGPSEA GGPSEAGGPS  EAGGPSEAGW
BI2259   GGPSEAGGPS  EAGGPSEAGG PSEAGGPSEA GGPSEAGGPS  EAGGPSEAGW
BI2253   GGPSEAGGPS  EAGGPSEAGG PSEAGGPSEA GGPSEAGGPS  EAGGPSEAGW
GRAC,S   GGPSEAGGPS  EAGGPSEAGG PSEAGGPSEA GGPSEAGGPS  EAGGPSEAGW
FISH,S   GGPSEAGGPS  EAGGPSEAGG PSEAGGPSEA GGPSEAGGPS  EAGGPSEAGW
MN1HAM   GGPSEAGGPS  EAGGPSEAGG PSEAGGPSEA GGPSEAGGPS  EAGGPSGTGW
MN2      ...SEAGGPS  EAGGPSEAGG PSEAGGPSEA GGPSEAGGPS  EAGGPSGTGW
MN1PAT   GGPSEAGGPS  EAGGPSEAGG PSEAGGPSEA GGPSEAGGPS  EAGGPSGTGW
Bmni-6   GGPSEAGGPS  EAGGPSEAGG PSEAGGPSEA GGPSHAGGPS  EAGGPSGTGW
MN3      GGPSEAGGPS  EAGGPSEAGG PSEAGGPSEA GGPSEAGGPS  EAGGPSGTGW
MR.T     GGPSEAGGPS  EAGGPSEAGG PSEAGGPSEA GGPSEAGGPS  EAGGPSGTGW
         101                                                     150
 BI254   PSEAGGP...  .........S EAGGPSGTGW PSGTGWPSEV  GWPSERFGYQ
BI1053   PSEAGGP...  .........S EAGGPSGTGW PSGTGWPSEV  GWPSERFGYQ
BI2227   PSEAGWPSEA  GGPSGTGWPS EAGWPSEAGW PSEAGWPSEA  GW........
BI2259   PSEAGWPSEA  GGPSGTGWPS EAGWPSEAGW PSEAGWPSEA  GWPSERFGYQ
BI2253   PSEAGWPSEA  GGPSGTGWPS EAGWPSEAGW PSEAGWPSEA  GWPSER....
GRAC,S   PSEAGWPSEA  GGPSGTGWPS EAGWPSEAGW PSEAGWPSEA  GWPSERFGYQ
FISH,S   PSEAGWPSEA  GGPSGTGWPS EAGWPSEAGW PSEAGWPSEA  GWPSERFGYQ
MN1HAM   PSEAGWP...  .........S EAGWPSEAGW PSEAGWPSEA  GWPSERFGYQ
MN2      PSEAGWP...  .........S EAGWPSEAGW PSEAGWPSEA  GW........
MN1PAT   PSEAGWP...  .........S EAGWPSEAGW PSEAGWPSEA  GWPSERFGYO
Bmni-6   PSEAGWP...  .........S EAGWPSEAGW PSEAGWPSEA  GWPSERFGYQ
MN3      PSEAGWP...  .........S EAGWPSEAGW PSEAGWPSEA  GWPSERFGYQ
MR.T     PSEAGWP...  .........S EAGWPSEAGW PSEAGWPSEA  GWPSERFGYQ
```

Fig. 6A

```
          151                                 177
 BI254    LLWYSRRIVI ..........  .......
BI1053    LLWYSRRIVI ..........  .......
BI2227    .......... ..........  .......
BI2259    LLWYSRRIVI ..........  .......
BI2253    .......... ..........  .......
GRAC,S    LLWYS..... ..........  .......
FISH,S    .......... ..........  .......
MN1HAM    LLWYSRRIVI ..........  .......
MN2       .......... ..........  .......
MN1PAT    LLWYS..... ..........  .......
Bmni-6    LLWYSRRIVI FNEIYLSHIY  EHSVMIL
MN3       LLWYSR.... ..........  .......
MR.T      LLWYSR.... ..........  .......
```

Fig. 6B